

December 5, 1990

Westinghouse Hanford Company 2355 Stevens Drive Richland, WA 99352 Attn: R. A. Bechtold

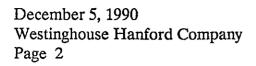
Reference: Contract No. MPB-SVV-069146



Dear Ms. Bechtold:

Enclosed is the sample delivery group No. BOOB87 and SOW No. 300-FF-1 Remedial Investigation, Task 5b Vegetation Analysis for CY 1990. The following samples were received on October 19, 1990:

WHC Sample No.	SAIC Sample No
BOOB87	19768
BOOB86	19769
BOOB85	19770
BOOB88	19772 .
BOOB84	19773
BOOB89	19774
BOO9V2	19775
BOO9V1	19776
BOO9V0	19777
BOO9T9	19778
BOO9T8	19779
BOO9T7	19780
BOOB83	19782
BOOB81	19783
BOOB82	19784
BOOB93	19785
BOOB92	19786
BOOB91	19787
BOOB90	19788

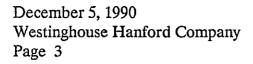




WHC Sample No.	SAIC Sample No.	-	-
BOOCJ2	19789		
BOOCJ5	19790		
BOOCJ0	19792		
BOOCJ3	19793		
BOOCJ1	19794		
BOOCJ6	19795		
BOOCH5	19796	_	
BOOCJ8	19797		
BOOCH8	19798		
BOOCJ9	19799		
BOOCH7	19800		
BOOCJ7	19802		
BOO9Q4	19803		
BOO9Q6	19804		
BOO9Q3	19805		
BOO9Q5	19806		
BOO9T1	19807		
BOO9T2	19808		-
BOO9T3	19809		
BOO9T4	19810	7	
BOO9T6	19812	<u></u>	
BOO9T5	19813	•	1.F -
BOOB79	19814		
BOOB78	19815		

Data is also included for the blanks, replicates, spikes, and lab control samples. Samples were as follows:

Type of Sample	SAIC Sample Numbers			
Duplicate	19771			
Duplicate	19781			
Duplicate	19791			
Duplicate	19801			
Duplicate	19811			





Type of Sample	SAIC Sample Numbers		
Blank	Blank 1		
Blank	Blank 2		
Blank	Blank 3		
Blank	Blank 4		
Blank	Blank 5		
Blank	Blank 6		
Blank	Blank 7		
Reference Standard	Spike 1		
Reference Standard	Spike 2		
Reference Standard	Spike 3		
Reference Standard	Spike 4		
Reference Standard	Spike 5		
Reference Standard	Spike 6		
Reference Standard	Spike 7		
Reference Standard	Spike 8		
Reference Standard	Spike 9		

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Very truly yours,

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

Farideh Moghadami Laboratory Manager

cc: QA Officer

SAIC Analytical Laboratory 3 Choke Cherry Road Rockville, MD 20850-4087 December 7, 1990 Westinghouse Hanford Case Narrative Page 1 of 4

CASE NARRATIVE

Sample Delivery Group No. BOOB87 was analyzed in accordance with SAIC's standard operating procedures and the quality assurance program. This group was received on October 19, 1990 and included the following samples:

WHC Sample No.	SAIC Sample No.	Sample Date	Sample Type
воов87	19768	05/21/90	Asparaguš
BOOB86	19769	05/21/90	Asparagus Asparagus
BOOB85	19770	05/21/90	Asparagus
BOOB88	19772	05/21/90	Asparagus
BOOB84	19773	05/21/90	Asparagus
BOOB89	19774	05/25/90	Asparagus
BOO9V2	19775	05/07/90	Asparagus
BOO9V2 BOO9V1	19776	05/07/90	Asparagus
BOO9V1	19777	05/07/90	Asparagus
BOO9V0 BOO9T9	19778	05/07/90	Asparagus
BOO9T9 BOO9T8	19779	05/07/90	Asparagus
BOO9T7	19780	05/07/90	Asparagus
BOOB83	19782	05/21/90	Asparagus
BOOB81	19782	05/14/90	Asparagus
BOOB82	19784	05/14/90	Asparagus
BOOB93	19785	05/25/90	Asparagus
BOOB93 BOOB92	19786	• •	
	19787	05/25/90	Asparagus
BOOB91		05/25/90	Asparagus
BOOB90	19788	05/25/90	Asparagus
BOOCJ2	19789	06/19/90	CHNA
BOOCJ5	19790	06/19/90	POSA
BOOCJ0	19792	06/19/90	CHNA
BOOCJ3	19793	06/19/90	₌ POSA
BOOCJ1	19794	06/19/90	CHNA
BOOCJ6	19795	06/19/90	POSA
BOOCH5	19796	06/19/90	CHNA
BOOCJ8	19797	06/19/90	POSA
BOOCH8	19798	06/19/90	CHNA
BOOCJ9	19799	06/19/90	POSA
BOOCH7	19800	06/19/90	CHNA
BOOCJ7	19802	06/19/90	POSA
	,		



SAIC Analytical Laboratory 3 Choke Cherry Road Rockville, MD 20850-4087

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WHC Sample No.	le No. SAIC Sample No. Sample Date		Sample Type		
BOO9Q4	19803	04/20/90	Asparagus		
BOO9Q6	19804	04/20/90	Asparagus		
BOO9Q3	19805	04/20/90	Asparagus		
BOO9Q5	19806	04/20/90	Asparagus		
BOO9T1	19807	04/26/90	Asparagus		
BOO9T2	19808	04/26/90	* Asparagus		
BOO9T3	19809	05/03/90	Asparagus		
BOO9T4	19810	05/03/90	* Asparagus		
BOO9T6	19812	05/03/90	Asparagus		
BOO9T5	19813	05/03/90	Asparagus		
BOOB79	19814	05/14/90	Asparagus		
BOOB78	19815	05/14/90	Asparagus		

No abnormalities, problems, or deviations from accepted procedures were identified except those noted as follows:

Detection limit of 1.2 pCi/g on samples 19778, 19790, 19794, 19802, 19799, 19797

The laboratory was unable to achieve the detection limit of 1.0 pCi/g on these samples due to the amount of sample available. Five (5) grams of sample was supplied, and ten (10) grams of this sample type are necessary to meet this detection limit. The lab generally allocates 50% of sample received for chemical separations and archives 50% to allow for any problems that may arise or for a requested reanalysis.



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Issue

Reason

Recount of samples 19811, 19813, 19813, 19798, 19765,

The original count of these samples were slightly above background and the lab recounted the samples. The recount values were at background levels.

Redissolve and recount of samples 19785, 19786

These samples indicated three to four times background levels of activity. The samples were redissolved and precipitated a second time and counted for beta activity. The second count indicated no significant level of beta activity. Technetium is precipitated as tetraphenyl arsonium perrehenate. This is a very large and bulky molecule and can sometimes capture naturally occuring potassium 40 inside the lattice of the compound. The original count probably reflected activity from potassium 40. Dissolving the sample in ethanol and re-precipitating probably removed the interfering ions.

Reanalysis of samples 19782, 19769, 19774

These samples were reanalyzed due to unusually low yields. The samples were probably not mixed thoroughly wehn the tetraphenylarsonium chloride was added to the sample in the purification step of the procedure.



SAIC
Analytical Laboratory
3 Choke Cherry Road
Rockville, MD 20850-4087

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Issue

Reason

Sample 19780 not duplicated (indicated as a duplicate QC sample)

This sample was not duplicated because a portion of the sample was spilled in transfer. In order to meet the 1 pCi/g detection limit, all of the remaining sample was used for one chemical separation.





CHAIN OF CUSTODY

CAB 034

Company Contact: Citarus	5 A. BOWN DT	·	Telephone: 376 - 5345	
Samples Collected by:A		Date:		_
Sample Location: <u>LA</u>				_
Ice Chest No.: んん		Field Logb	ook Page No.:	- .
Remarks: 99 Tc Sol	<u>`</u> }\$			_
			ē	_
Method of Shipment: Hann	d Carry		-	
Now Propert II v	Sample Identific	cation , 5 5	0.50	_
1 11	huber Number	New Parent	None Parent	<u> </u>
BOOB'27 BOOYCE BO	0977 BUN979 X	WBOOCTO BOUGHS	1800906 ASPC02	<u> </u>
XB007 66 B009C7 B0	OB 33 BOX1C4 X	XBOCT3 BOCGPO	\$ 009 03 ASTGO!	ЯХ
MECOID : 25 BUCGC BO	CB81 BCC9CZX	XBOCII BOO9 P3	VISCOPPE ASPGOZ	<u> </u>
VBOOB 88 BOOG C9 Box	0B82 B009 C3 XMULIC	XVB00C J6 B009P4	VB009 TI ASPG 047	<u>₹</u> X
(Baoi3 74 Boog C5 Bo	BIL BECT DE KJENOVEN	XVBOOCHS BOOGPI	YDOO9 TZ ASTGO4	3 X
WB:003 87 BOOFDO BO	0693 B00904X	X/BOX 18 BOO9P2	\$ 009T3 B00975	<u>:</u> ×
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Westinghouse Hanford Company A subsidiary of Westinghouse Electric

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55-2

54-7000-169 (12/85

99Tc # '	Parent #	Stratum	Sample Date	Sample Type
B00B87	B009C8	300 Downriver	05/21/90	Asparagus
B00B86	B009C7	300 Downriver	05/21/90	Asparagus
B00B85	B009C6	300 Downriver	05/21/90	Asparagus
B00B88	B009C9	300 Downriver	05/21/90	Asparagus
B00B84	B009C5	300 Downriver	05/21/90	Asparagus
B00B89	B009D0	300 Downriver	05/25/90	Asparagus
B009V2	B00984	Downriver	05/07/90	Asparagus
B009V1	B00983	Downriver	05/07/90	Asparagus
B009V0	B00982	Downriver	05/07/90	Asparagus
B009T9	B00981	Downriver	05/07/90	Asparagus
B009T8	B00980	Downriver	05/07/90	Asparagus
B009T7	B00979	Downriver	05/07/90	Asparagus
B00B83	B009C4	Downriver	05/21/90	Asparagus
B00B81	B009C2	Operable Unit	05/14/90	Asparagus
B00B82	B009C3	Operable Unit	05/14/90	Asparagus
-B00B94	B009D5	Operable Unit	05/25/90	Asparagus
B00B93	B009D4	Operable Unit	05/25/90	Asparagus
B00B92	B009D3	Operable Unit	05/25/90	Asparagus
B00B91	B009D2	Operable Unit	05/25/90	Asparagus
B00B90	B009D1	Operable Unit	05/25/90	Asparagus
B00CJ2	B009P7	Operable Unit	06/19/90	CHNA
B00CJ5	B009P8	Operable Unit	06/19/90	POSA 07
B00CJ0	B009P5	Operable Unit	06/19/90	CHNA 5
B00CJ3	B009P6	Operable Unit	06/19/90	POSA
B00CJ1	B009P3	Operable Unit	06/19/90	CHNA
B00CJ6	B009P4	Operable Unit	06/19/90	POSA
B00CH5	B009P1	Operable Unit	06/19/90	CHNA
B00CJ8	B009P2	Operable Unit	06/19/90	POŚA
B00CH8	B009N9	Operable Unit	06/19/90	CHNA
B00CJ9	B009P0	Operable Unit	06/19/90	POSA
B00CH7	B009N7	Operable Unit	06/19/90	CHNA
B00CJ7	B009N8	Operable Unit	06/19/90	POSA
B009Q4	ASPG020	South Plateau	04/20/90	Asparagus
B009Q6	ASPG022	South Plateau	04/20/90	Asparagus
B009Q3	ASPG019	South Plateau	04/20/90	Asparagus
B009Q5	ASPG021	South Plateau	04/20/90	Asparagus
B009T1	ASPG047	South Plateau	04/26/90	Asparagus
				_

5-65

99 T c # ~	Parent #	Stratum	Sample Date	Sample 1	Гуре
B009T2	ASPG048	South Plateau	04/26/90	Asparagus	,
B009T3	B00975	Upriver	05/03/90	Asparagus	7 /2
B009T4	B00974	Upriver	05/03/90	Asparagus	<i>F</i> '
B009T6	B00978	Upriver	05/03/90	Asparagus	
B009T5	B00977	Upriver	05/03/90	Asparagus	
B00B79	B009C1	Upriver	05/14/90	Asparagus	
B00B78	B009C0 ~	Upriver	05/14/90	Asparagus	
B00B77	B009B9	Upriver	05/14/90	Asparagus	
B00CH6	B009P9	Upriver	06/20/90	CHNA	
В00СК0	B009Q0	Upriver	06/20/90	POSA	
B00CH9	B009Q1	Upriver	06/20/90	CHNA	
B00CJ4	B009Q2	Upriver	06/20/90	POSA	
B009V6	B00988	West	05/07/90	Asparagus	
B009V5	B00987	West	05/07/90	Asparagus	
B009V3	B00985	West	05/07/90	Asparagus	žį.
B009V4	B00986	West	05/07/90	Asparagus	Per dim dim
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B009p7	A576 023	Hangond Towns	ste 04/24/90	Asperago	5
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B00908	1300990	Sunny 4. de	05/08/90	As parago	5) -1
13009 R4	A4P6030	Taylor Flats	04/25/90		
B009 R7	A576033	Taylor Flats	04/25/90	As parago	5 g 90 b.
1300 956	A586,042	Taylor Flats	04/25/90	Asparagu	15 } dur.
B00959	ASP6:045	Taylor Flats	०५१२५१५०	As para de	25)
B00909	500991		05/08/90		
Boogwo	B00992	Toppenish	05/08/90	Annarage	ا استدا
B009 40	4576036	Taiglor Flats	04/25190		
300951	A4P6037	TaylorFlats	04125190	An paragi	2 dol.
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Hanford Plant Name

Sample Type Special, Solid 05/21/90 12:00 Reference Date/Time

Receipt Date 10/19/90 Reporting Date SAIC Sample Number 12/07/90 19768 Plant Sample ID U# B00B87

Volume/Weight 8.6540E+00 q (dry) Purchase Order Number MPB-SVV-069146 SAIC Project Number 1-139-05-656

Measured Concentration

(uCi/g (dry)) Value MDL Nuclide % Unc. 99-Tc

Project Manager

Laboratory Manager

Plant Name Hanford

Sample Type Special, Solid 05/21/90 12:00 Reference Date/Time

10/19/90 Receipt Date Reporting Date SAIC Sample Number 12/07/90 19769 U# B00B86 Plant Sample ID

9.1351E+00 g (dry) Volume/Weight Purchase Order Number : SAIC Project Number : MPB-SVV-069146 1-139-05-656

Measured Concentration

(uCi/g (dry)) Value Nuclide % Unc. MDL 14E-0 99-Tc 3E-06

Project Manager

Laboratory Manager

Plant Name Hanford

Special, Solid 05/21/90 12:00 Sample Type Reference Date/Time

Receipt Date 10/19/90 Reporting Date 12/07/90 SAIC Sample Number 19770 Plant Sample ID U# B00B85

Volume/Weight 8.9842E+00 g (dry) Purchase Order Number MPB-SVV-069146 SAIC Project Number 1-139-05-656

Measured Concentration

(uCi/g (dry))
Value Nuclide % Unc. MDL 99-TC 60

Project Manager

Laboratory Manager

Plant Name : Hanford

Sample Type : Special, Solid Reference Date/Time : 06/20/90 12:00

Receipt Date : 10/19/90
Reporting Date : 12/07/90
SAIC Sample Number : 19771

Plant Sample ID : DUPLICATE 19745, U# B00CK0

Volume/Weight : 4.2545E+00 g (dry)
Purchase Order Number : MPB-SVV-069146

SAIC Project Number : MPB-SVV-069146 SAIC Project Number : 1-139-05-656

Measured Concentration

(uCi/g (dry))
Nuclide Value % Unc.

99-Tc -5.37E-07/ 125 <1.2E-06

MDL

Project Manager

Laboratory Manager Truck Marilla c/

Plant Name Hanford

Special, Solid 05/21/90 12:00 Sample Type Reference Date/Time

Receipt Date 10/19/90 Reporting Date 12/07/90 SAIC Sample Number 19772 Plant Sample ID U# B00B88

Volume/Weight 1.0002E+01 g (dry) Purchase Order Number: MPB-SVV-069146

1-139-05-656 SAIC Project Number

Measured Concentration

(uCi/g (dry))

Value MDL Nuclide % Unc. 99-Tc 1E-07 97E-08 456

Project Manager

Laboratory Manager

Plant Name : Hanford

Sample Type : Special, Solid Reference Date/Time : 05/21/90 12:00

Receipt Date : 10/19/90
Reporting Date : 12/07/90
SAIC Sample Number : 19773
Plant Sample ID : U# B00B84

Volume/Weight : 8.5956E+00 g (dry)
Purchase Order Number : MPB-SVV-069146
SAIC Project Number : 1-139-05-656

Measured Concentration

(uCi/g (dry))
Value % Unc. MDL

69

E=06

99-Tc -1.93E-96

Project Manager

Nuclide

Laboratory Manager

Plant Name : Hanford

Sample Type : Special, Solid Reference Date/Time : 05/25/90 12:00

Receipt Date : 10/19/90
Reporting Date : 12/07/90
SAIC Sample Number : 19774
Plant Sample ID : U# B00B89

Volume/Weight : 8.3858E+00 g (dry)

Purchase Order Number: MPBSVV069146 SAIC Project Number: 1-139-05-656

Measured Concentration

(uCi/g (dry))

Project Manager

Laboratory Manager

Plant Name : Hanford

Sample Type : Special, Solid Reference Date/Time : 05/07/90 12:00

Receipt Date : 10/19/90
Reporting Date : 12/07/90
SAIC Sample Number : 19775
Plant Sample ID : U# B009V2

Volume/Weight : 9.6225E+00 g (dry)
Purchase Order Number : MPB-SVV-069146
SAIC Project Number : 1-139-05-656

Measured Concentration

(uCi/g (dry))

Nuclide Value % Unc. MDL ----- --- --- --- --- --- 99-Tc 4.56E-07/ 110 < 7.8E-0

Project Manager

Laboratory Manager

Plant Name : Hanford

Sample Type : Special, Solid Reference Date/Time : 05/07/90 12:00

Receipt Date : 10/19/90
Reporting Date : 12/07/90
SAIC Sample Number : 19776
Plant Sample ID : U# B008V1

Volume/Weight : 8.4336E+00 g (dry)
Purchase Order Number : MPB-SVV-069146
SAIC Project Number : 1-139-05-656

Measured Concentration

(uCi/g (dry))

Nuclide Value % Unc. MDL 99-Tc 5.92E-07 62 <6.7E+07

Project Manager

Laboratory Manager Tout de number

Plant Name : Hanford

Sample Type : Special, Solid Reference Date/Time : 05/07/90 12:00

Receipt Date : 10/19/90
Reporting Date : 12/07/90
SAIC Sample Number : 19777
Plant Sample ID : U# B009V0

Volume/Weight : 7.9310E+00 g (dry)
Purchase Order Number : MPB-SVV-069146

SAIC Project Number: 1-139-05-656

Measured Concentration

(uCi/g (dry))

Nuclide Value % Unc. MDL 99-Tc 2-55E-07/ 152 6.1E-07

Project Manager

Laboratory Manager Tank

Plant Name Hanford Sample Type Special, Solid Reference Date/Time 05/07/90 12:00 Receipt Date 10/19/90 12/07/90 Reporting Date SAIC Sample Number 19778 Plant Sample ID U# B009T9 Volume/Weight 8.9111E+00 g (dry) Purchase Order Number MPB-SVV-069146 SAIC Project Number 1-139-05-656

Measured Concentration

(uCi/g (dry)) Value

MDL Nuclide % Unc. 99-Tc 49E-07 154 2E-06

Project Manager

Laboratory Manager

Plant Name Hanford

Sample Type Special, Solid 05/07/90 12:00 Reference Date/Time

Receipt Date 10/19/90 Reporting Date SAIC Sample Number 12/07/90 19779

Plant Sample ID U# B009T8

Volume/Weight 8.8680E+00 g (dry) Purchase Order Number : MPB-SVV-069146 SAIC Project Number 1-139-05-656

Measured Concentration

(uCi/g (dry)) Nuclide

Value % Unc. MDL

99-Tc

Project Manager

Laboratory Manager

Plant Name Hanford

Special, Solid 05/07/90 12:00 Sample Type Reference Date/Time

Receipt Date 10/19/90 Reporting Date 12/07/90 SAIC Sample Number 19780 Plant Sample ID U# B009T7

Volume/Weight 8.9855E+00 g (dry) Purchase Order Number : MPB-SVV-069146 SAIC Project Number 1-139-05-656

Measured Concentration

(uCi/g (dry)) Value Nuclide

% Unc.

MDL

99-TC

Project Manager

Laboratory Manager

Plant Name Hanford Special, Solid 05/21/90 12:00 Sample Type Reference Date/Time 10/19/90 Receipt Date Reporting Date 12/07/90 SAIC Sample Number 19782 U# B00B83 Plant Sample ID 8.4800E+00 g (dry) Volume/Weight Purchase Order Number : MPB-SVV-069146 SAIC Project Number : 1-139-05-656

Measured Concentration

(uCi/g (dry)) Value

Nuclide

% Unc.

MDL

99-Tc

_____ 5..85Æ−07,

125 <1-3E=00

Project Manager

Laboratory Manager

mo fractioni

Plant Name Hanford

Sample Type Special, Solid 05/14/90 12:00 Reference Date/Time

Receipt Date 10/19/90 Reporting Date 12/07/90 SAIC Sample Number 19783 Plant Sample ID U# B00B81

Volume/Weight 8.2857E+00 g (dry) Purchase Order Number MPB-SVV-069146 SAIC Project Number 1-139-05-656

Measured Concentration

MDL

(uCi/g (dry))

Vàlue Nuclide % Unc. 99-Tc

Project Manager

Laboratory Manager

Plant Name Hanford

Sample Type Special, Solid 05/14/90 12:00 Reference Date/Time

Receipt Date 10/19/90 Reporting Date 12/07/90 SAIC Sample Number 19784 U# B00B82 Plant Sample ID

9.2226E+00 g (dry) Volume/Weight MPB-SVV-069146 Purchase Order Number

SAIC Project Number 1-139-05-656

Measured Concentration

(uCi/g (dry))

Value % Unc. MDL Nuclide

99-Tc

//613 <5.2E/97

Project Manager

Laboratory Manager

Plant Name Hanford

Special, Solid Sample Type Reference Date/Time 05/25/90 12:00

Receipt Date 10/19/90 Reporting Date 12/07/90 SAIC Sample Number 19785 Plant Sample ID U# B00B93

Volume/Weight 8.9634E+00 g (dry) Purchase Order Number : MPB-SVV-069146 SAIC Project Number 1-139-05-656 :

Measured Concentration

62E-08

MDL

<6 \ 6E -07

(uCi/g (dry))

Nuclide Value % Unc.

Project Manager

Laboratory Manager

99-Tc

Plant Name : Hanford

Sample Type : Special, Solid Reference Date/Time : 05/25/90 12:00

Receipt Date : 10/19/90
Reporting Date : 12/07/90
SAIC Sample Number : 19786
Plant Sample ID : U# B00B92

Volume/Weight : 8.5508E+00 g (dry)
Purchase Order Number : MPB-SVV-069146
SAIC Project Number : 1-139-05-656

Measured Concentration

(uCi/g (dry))

Project Manager

Laboratory Manager Calakh Markach

Plant Name : Hanford

Sample Type : Special, Solid Reference Date/Time : 05/25/90 12:00

Receipt Date : 10/19/90
Reporting Date : 12/07/90
SAIC Sample Number : 19787
Plant Sample ID : U# B00B91

Volume/Weight : 8.3309E+00 g (dry)
Purchase Order Number : MPB-SVV-069146
SAIC Project Number : 1-139-05-656

Measured Concentration

(uCi/g (dry))

Nuclide Value

% Unc.

 \mathtt{MDL}

99-Tc

-1.02E-06

44 <8.6Ez

Project Manager

Laboratory Manager

Plant Name : Hanford

Sample Type : Special, Solid Reference Date/Time : 05/25/90 12:00

Receipt Date : 10/19/90
Reporting Date : 12/07/90
SAIC Sample Number : 19788
Plant Sample ID : U# B00B90

Volume/Weight : 8.0832E+00 g (dry)
Purchase Order Number : MPB-SVV-069146
SAIC Project Number : 1-139-05-656

Measured Concentration

(uCi/g (dry))

Nuclide Value % Unc. MDL ----- 99-Tc -2.90E-07 145 7.3E-07

Project Manager

Laboratory Manager

Plant Name : Hanford

Sample Type : Special, Solid Reference Date/Time : 06/19/90 12:00

Receipt Date : 10/19/90
Reporting Date : 12/07/90
SAIC Sample Number : 19789
Plant Sample ID : U# B00CJ2

Volume/Weight : 5.8982E+00 g (dry)
Purchase Order Number : MPB-SVV-069146
SAIC Project Number : 1-139-05-656

Measured Concentration

(uCi/g (dry))

Nuclide Value % Unc. MDL ----- 99-Tc -5.51E-07 81; <8.9E-07

Project Manager

Laboratory Manager

Plant Name : Hanford

Sample Type : Special, Solid Reference Date/Time : 06/19/90 12:00

Receipt Date : 10/19/90
Reporting Date : 12/07/90
SAIC Sample Number : 19790
Plant Sample ID : U# B00CJS

Volume/Weight : 4.5775E+00 g (dry)
Purchase Order Number : MPB-SVV-069146
SAIC Project Number : 1-139-05-656

Measured Concentration

(uCi/g (dry))

Nuclide Value % Unc. MDL

2E-06

Project Manager

99-Tc

Laboratory Manager

Plant Name Hanford

Special, Solid 06/19/90 12:00 10/19/90 Sample Type Reference Date/Time

Receipt Date Reporting Date SAIC Sample Number 12/07/90 19791

Plant Sample ID DUPLICATE 19789, U# BOOCJ5

Volume/Weight 5.8982E+00 g (dry) Purchase Order Number MPB-SVV-069146 SAIC Project Number 1-139-05-656

Measured Concentration

(uCi/g (dry)) Value

Nuclide

% Unc.

MDL

99-Tc

Project Manager

Laboratory Manager

Plant Name Hanford

Special, Solid 06/19/90 12:00 10/19/90 Sample Type Reference Date/Time

Receipt Date Reporting Date 12/07/90 SAIC Sample Number 19792

Plant Sample ID U# BOOCJO 5.6310E+00 g (dry) Volume/Weight

Purchase Order Number MPB-SVV-069146 SAIC Project Number 1-139-05-656

Measured Concentration

(uCi/g (dry))

Value Nuclide

% Unc. MDL

99-Tc

34E-02

<8.7E-07

Project Manager

Laboratory Manager

Plant Name : Hanford

Sample Type : Special, Solid Reference Date/Time : 06/19/90 12:00

Receipt Date : 10/19/90
Reporting Date : 12/07/90
SAIC Sample Number : 19793
Plant Sample ID : U# B00CJ3

Volume/Weight : 3.8372E+00 g (dry)
Purchase Order Number : MPB-SVV-069146

SAIC Project Number : 1-139-05-656

Measured Concentration

(uCi/g (dry))
Nuclide Value

ilue % Unc.

MDL

99-Tc

_2.39Ē∱∂7

223 <8/2E-07

Project Manager

Laboratory Manager

Plant Name Hanford

Special, Solid 06/19/90 12:00 Sample Type Reference Date/Time

Receipt Date 10/19/90 Reporting Date SAIC Sample Number 12/07/90 19794 Plant Sample ID U# BOOCJ1

Volume/Weight 5.8825E+00 g (dry) Purchase Order Number MPB-SVV-069146 SAIC Project Number 1-139-05-656

Measured Concentration

(uCi/g (dry)) Value Nuclide

% Unc. MDL

Project Manager

Laboratory Manager

99-Tc

Plant Name Hanford

Sample Type Special, Solid 06/19/90 12:00 Reference Date/Time

Receipt Date 10/19/90 Reporting Date 12/07/90 SAIC Sample Number 19795 Plant Sample ID U# BOOCJ6

Volume/Weight 5.0794E+00 g (dry) Purchase Order Number MPB-SVV-069146 SAIC Project Number 1-139-05-656

Measured Concentration

(uCi/g (dry)) Value Nuclide % Unc.

99-Tc

164

MDL

Project Manager

Laboratory Manager

Plant Name Hanford

Sample Type Special, Solid 06/19/90 12:00 Reference Date/Time

10/19/90 Receipt Date Reporting Date 12/07/90 SAIC Sample Number 19796 Plant Sample ID U# BOOCH5

7.2030E+00 g (dry) Volume/Weight Purchase Order Number MPB-SVV-069146 SAIC Project Number 1-139-05-656

Measured Concentration

(uCi/g (dry))
Value Nuclide % Unc. 99-Tc 249

MDL

Project Manager

Laboratory Manager

Plant Name : Hanford

Sample Type : Special, Solid Reference Date/Time : 06/19/90 12:00

Receipt Date : 10/19/90
Reporting Date : 12/07/90
SAIC Sample Number : 19797

Plant Sample ID : U# B00CJ8
Volume/Weight : 3.7303E+00 g (dry)

Purchase Order Number: MPB-SVV-069146 SAIC Project Number: 1-139-05-656

Measured Concentration

(uCi/g (dry))
Nuclide Value

MDL

8E-06

99-Tc 7.42E-07

Project Manager

Laboratory Manager Touch h hard and me

Plant Name : Hanford

Sample Type : Special, Solid Reference Date/Time : 06/19/90 12:00

Receipt Date : 10/19/90
Reporting Date : 12/07/90
SAIC Sample Number : 19798
Plant Sample ID : U# B00CH8

Volume/Weight : 6.9929E+00 g (dry)
Purchase Order Number : MPB-SVV-069146
SAIC Project Number : 1-139-05-656

Measured Concentration

Project Manager

Laboratory Manager Facility Manager

Plant Name Hanford Sample Type

Special, Solid 06/19/90 12:00 Reference Date/Time

Receipt Date 10/19/90 Reporting Date 12/07/90 SAIC Sample Number 19799 Plant Sample ID U# B00CJ9

Volume/Weight 4.8675E+00 g (dry) Purchase Order Number: MPB-SVV-069146 SAIC Project Number 1-139-05-656

Measured Concentration

(uCi/g (dry))

Nuclide Value MDL % Unc. 99-Tc 232 3.72E-07

Project Manager

Laboratory Manager

Plant Name : Hanford : Special, Solid Reference Date/Time : 06/19/90 12:00 Receipt Date : 10/19/90 Reporting Date : 12/07/90 SAIC Sample Number : 19800 Plant Sample ID : U# BOOCH7

Volume/Weight : 6.1903E+00 g (dry)
Purchase Order Number : MPB-SVV-069146
SAIC Project Number : 1-139-05-656

Measured Concentration

(uCi/g (dry)) Value % Unc.

Nuclide Value % Unc. MDL 99-Tc 3.46E-07, 192 1.1E-06

Project Manager

Laboratory Manager Touteh Muthaclami

Plant Name : Hanford

Sample Type : Special, Solid Reference Date/Time : 06/19/90 12:00

Receipt Date : 10/19/90
Reporting Date : 12/07/90
SAIC Sample Number : 19801

Plant Sample ID : DUPLICATE 19789, U# B009Q4

Volume/Weight : 1.0287E+01 g (dry)
Purchase Order Number : MPB-SVV-069146
SAIC Project Number : 1-139-05-656

Measured Concentration

(uCi/g (dry)) Value

Nuclide

'àlue' %

% Unc. MDL

99-Tc

-3-24E-07

125/)

___ 1E=07-

Project Manager

Laboratory Manager

Plant Name : Hanford

Sample Type : Special, Solid Reference Date/Time : 06/10/90 12:00

Receipt Date : 10/19/90
Reporting Date : 12/07/90
SAIC Sample Number : 19802
Plant Sample ID : U# B00CJ7

Volume/Weight : 4.3871E+00 g (dry)
Purchase Order Number : MPB-SVV-069146
SAIC Project Number : 1-139-05-656

Measured Concentration

(uCi/g (dry))

Nuclide

Value _

% Unc.

MDL

99-Tc

1.08E-06

64 <1.2E-06

Project Manager

Laboratory Manager

Plant Name Hanford

Special, Solid 04/20/90 12:00 Sample Type Reference Date/Time

Receipt Date 10/19/90 Reporting Date 12/07/90 SAIC Sample Number 19803 Plant Sample ID U# B009Q4

Volume/Weight 1.0287E+01 g (dry) Purchase Order Number : MPB-SVV-069146 SAIC Project Number 1-139-05-656

Measured Concentration

(uCi/g (dry)) Value Nuclide % Unc. MDL 99-Tc 1.18£-08 <6-2E-07

Project Manager

Laboratory Manager

Plant Name Hanford Sample Type Special, Solid Reference Date/Time 04/20/90 12:00

Receipt Date 10/19/90 Reporting Date 12/07/90 SAIC Sample Number 19804 Plant Sample ID U# B009Q6

1.0441E+01 g (dry) Volume/Weight Purchase Order Number MPB-SVV-069146

SAIC Project Number 1-139-05-656

Measured Concentration

(uCi/g (dry))

Value Nuclide % Unc. MDL <4.1E-07 99-TC 125

Project Manager

Laboratory Manager

Plant Name Hanford

Sample Type Special, Solid Reference Date/Time 04/20/90 12:00

Receipt Date 10/19/90 12/07/90 Reporting Date 19805 SAIC Sample Number Plant Sample ID U# B009Q3

Volume/Weight 1.0345E+01 g (dry) Purchase Order Number: MPB-SVV-069146 SAIC Project Number 1-139-05-656 :

Measured Concentration

(uCi/g (dry))

Value MDL Nuclide % Unc. 99-Tc 204

Project Manager

Laboratory Manager

Plant Name Hanford

Special, Solid 04/20/90 12:00 Sample Type Reference Date/Time

Receipt Date 10/19/90 Reporting Date SAIC Sample Number 12/07/90 19806 Plant Sample ID U# B009Q5

Volume/Weight 1.0402E+01 g (dry) MPB-SVV-069146 Purchase Order Number SAIC Project Number 1-139-05-656

Measured Concentration

(uCi/g (dry)) Value % Unc. MDL Nuclide 499 80E-08 99-Tc

Project Manager

Laboratory Manager

Plant Name Hanford

Special, Solid 04/26/90 12:00 Sample Type Reference Date/Time

Receipt Date 10/19/90 Reporting Date SAIC Sample Number 12/07/90 19807 Plant Sample ID U# B009T1

Volume/Weight 1.0338E+01 g (dry) Purchase Order Number SAIC Project Number MPB-SVV-069146

1-139-05-656

Measured Concentration

(uCi/g (dry)) Value Nuclide % Unc.

99-TC 209 <7.2E-07

MDL

Project Manager

Laboratory Manager

Plant Name Hanford

Special, Solid 04/26/90 12:00 Sample Type Reference Date/Time

Receipt Date 10/19/90 Reporting Date SAIC Sample Number 12/07/90 19808

U# B009T2 Plant Sample ID

1.0444E+01 g (dry) MPB-SVV-069146 Volume/Weight Purchase Order Number : SAIC Project Number : 1-139-05-656

Measured Concentration

(uCi/g (dry)) Value Nuclide % Unc. MDL <6.4E-07 99-Tc 74

Project Manager

Laboratory Manager

Plant Name Hanford

Sample Type Special, Solid Reference Date/Time 05/03/90 12:00

Receipt Date 10/19/90 Reporting Date 12/07/90 SAIC Sample Number 19809 Plant Sample ID U# B009T3

Volume/Weight 9.5277E+00 g (dry) Purchase Order Number MPB-SVV-069146 SAIC Project Number 1-139-05-656

Measured Concentration

(uCi/g (dry))

Value MDL Nuclide % Unc.

58

4E-07

Project Manager

Laboratory Manager

99-TC

Plant Name : Hanford

Sample Type : Special, Solid Reference Date/Time : 05/03/90 12:00

Receipt Date : 10/19/90
Reporting Date : 12/07/90
SAIC Sample Number : 19810

Plant Sample ID : U# B009T4

Volume/Weight : 9.5898E+00 g (dry),

Purchase Order Number: MPBSVV069146 SAIC Project Number: 1-139-05-656

Measured Concentration

(uCi/g (dry))

Nuclide Value % Unc. MDL ---- 99-Tc 3.36E-08,7 1060 <5,8E-

Project Manager

Laboratory Manager

Plant Name : Hanford

Sample Type : Special, Solid Reference Date/Time : 04/25/90 12:00

Receipt Date : 10/19/90
Reporting Date : 12/07/90
SAIC Sample Number : 19811

Plant Sample ID : DUPLICATE 19766, U# BOO9S0

Volume/Weight : 1.1084E+01 g (dry)
Purchase Order Number : MPB-SVV-069146
SAIC Project Number : 1-139-05-656

Measured Concentration

(uCi/g (dry))

Nuclide Value % Unc. MDL 99-Tc -2.14E+07/ 153 // 5.6E-07

Project Manager

Laboratory Manager

Plant Name : Hanford

Sample Type : Special, Solid Reference Date/Time : 05/03/90 12:00

Receipt Date : 10/19/90
Reporting Date : 12/07/90
SAIC Sample Number : 19812

Plant Sample ID : U# B009T6

Volume/Weight : 8.7850E+00 g (dry)
Purchase Order Number : MPB-SVV-069146
SAIC Project Number : 1-139-05-656

Measured Concentration

(uCi/g (dry))

Nuclide Value % Unc. MDL

99-Tc -5,53E-07, 65 <6,6E-07

Project Manager

Laboratory Manager Tantha Mr-Shadle

Plant Name Hanford

Special, Solid 05/03/90 12:00 Sample Type Reference Date/Time

Receipt Date 10/19/90 Reporting Date 12/07/90 SAIC Sample Number 19813 Plant Sample ID U# B009T5

Volume/Weight 8.8775E+00 g (dry) Purchase Order Number MPB-SVV-069146 SAIC Project Number 1-139-05-656

Measured Concentration

(uCi/g (dry)) Value Nuclide MDL % Unc. 99-Tc .73E-07

77

6E = 0.7

Project Manager

Laboratory Manager

Plant Name Hanford

Sample Type Special, Solid Reference Date/Time 05/14/90 12:00

Receipt Date 10/19/90 Reporting Date 12/07/90 SAIC Sample Number 19814

Plant Sample ID U# B00B78

Volume/Weight 8.7348E+00 g (dry) Purchase Order Number: MPB-SVV-069146 SAIC Project Number 1-139-05-656 :

Measured Concentration

(uCi/g (dry))

-2.43E

Nuclide Value % Unc. MDL 99-Tc

152

Project Manager

Laboratory Manager

Plant Name : Hanford

Sample Type : Special, Solid Reference Date/Time : 05/14/90 12:00

Receipt Date : 10/19/90
Reporting Date : 12/07/90
SAIC Sample Number : 19815
Plant Sample ID : U# B00B79

Volume/Weight : 8.8022E+00 g (dry)
Purchase Order Number : MPB-SVV-069146

SAIC Project Number : 1-139-05-656

Measured Concentration

(uCi/g (dry))

Nuclide Value % Unc. MDL ----- 99-Tc -5.57E-07 55 // <5.7E-07

Project Manager

Laboratory Manager

Sample type : Bl#1 : 1.0000E+00 ml Total sample volume/weight Sample volume/weight used : 1.0000E+00 ml Counter used : Tennelec #2 : Tennelec #2 : 11/27/90 Reference Date Chemistry Completion Date : 11/27/90
Weight of filter : 3.4200E+01 mg Weight of filter+precipitate: 4.9600E+01 mg
Weight of precipitate: 1.5400E+01 mg
Carrier concentration: 2.1970E+01 mg/ml
Carrier volume: 1.0000E+00 ml Carrier weight : 2.1970E+01 mg : 7.0096E-01 Yield Background counts : 1.1500E+02 : 5.0000E+01 min Background count time : 8.9000E+01 : 5.0000E+01 min Gross counts Gross count time Efficiency : 2.2289E-01 Impurities : 0.0000E+00

Tc-99 Concentration < 2.8878E-06

uCi/ ml

Initials Date

Data entered by

SG

Impurities uncertainty : 0.0000E+00

12/05/90

Data checked by

Sample type B1#2 Total sample volume/weight : 1.0000E+00 ml Sample volume/weight used : 1.0000E+00 ml Counter used Tennelec #1 Reference Date : 11/27/90 Sample Counting Date : 11/27/90 Chemistry Completion Date : 11/27/90 Weight of filter Weight of filter : 3.4300E+01 mg
Weight of filter+precipitate : 5.1600E+01 mg Weight of precipitate : 1.7300E+01 mg Carrier concentration : 2.1970E+01 mg/ : 2.1970E+01 mg/ml Carrier volume : 1.0000E+00 ml Carrier weight : 2.1970E+01 mg Yield : 7.8744E-01 Background counts : 1.2500E+02 Background count time : 5.0000E+01 min Gross counts : 1.0500E+02 Gross count time : 5.0000E+01 min : 2.1761E-01 Efficiency : 0.0000E+00 Impurities Impurities uncertainty : 0.0000E+00

Tc-99 Concentration < 2.7451E-06

uCi/ ml

Initials Date

Data entered by

SG

12/05/90

Data checked by

B1#3 Sample type Total sample volume/weight 1.0000E+00 ml 1.0000E+00 ml Sample volume/weight used Counter used Tennelec #1 12/01/90 Reference Date Sample Counting Date 11/28/90 Chemistry Completion Date 11/28/90 Weight of filter 3.4300E+01 mg Weight of filter+precipitate: 5.1700E+01 mg Weight of precipitate 1.7400E+01 mg 2.1970E+01 mg/ml Carrier concentration Carrier volume 1.0000E+00 ml Carrier weight 2.1970E+01 mg 7.9199E-01 Yield Background counts 1.2500E+02 5.0000E+01 min Background count time Gross counts 7.2000E+01 Gross count time 5.0000E+01 min 2.1731E-01 Efficiency 0.0000E+00 Impurities Impurities uncertainty : 0.0000E+00

Tc-99 Concentration < 2.7331E-06

uCi/ ml

Initials Date

Data entered by

12/05/90

Sample type	:	Bl#4	-
Total sample volume/weight	:	1.0000E+00	m1
Sample volume/weight used	:	1.0000E+00	ml
Counter used	:	Tennelec #1	- 11
Reference Date	:	12/01/90	
Sample Counting Date	:	11/30/90	-
Chemistry Completion Date	:	11/30/90	•
Weight of filter	:	3.4300E+01	mg
Weight of filter+precipitate	:	5.1700E+01	mg
Weight of precipitate	:	1.7400E+01	mg
Carrier concentration	:	2.1970E+01	mg/ml
Carrier volume	:	1.0000E+00	ml
Carrier weight	:	2.1970E+01	mg
Yield	:	7.9199E-01	
Background counts	:	1.2500E+02	
Background count time	:	5.0000E+01	min
Gross counts	:	9.0000E+01	
Gross count time	:	5.0000E+01	min
Efficiency	:	2.1731E-01	ŧ
Impurities	:	0.0000E+00	
Impurities uncertainty	:	0.0000E+00	

Tc-99 Concentration < 2.7331E-06 uCi/ ml

Initials Date

Data entered by

Tc-99 Concentration < 2.9037E-06

uCi/ ml

Date Initials

Data entered by

Bl#6 Sample type Total sample volume/weight 1.0000E+00 ml Sample volume/weight used 1.0000E+00 ml Counter used Tennelec #2 Reference Date 12/02/90 Sample Counting Date 12/02/90 Chemistry Completion Date 11/30/90 Weight of filter 3.4300E+01 mg Weight of filter+precipitate: 5.0600E+01 mg Weight of precipitate 1.6300E+01 mg Carrier concentration 2.1970E+01 mg/ml Carrier volume 1.0000E+00 ml Carrier weight 2.1970E+01 mg Yield 7.4192E-01 Background counts 1.1500E+02 Background count time 5.0000E+01 min Gross counts 9.2000E+01 Gross count time 5.0000E+01 min Efficiency 2.2089E-01 0.0000E+00 Impurities Impurities uncertainty 0.0000E+00

Tc-99 Concentration < 2.7530E-06

uCi/ ml

Initials Date

Data entered by

Sample type Blank 7 Total sample volume/weight 1.0000E+00 ml Sample volume/weight used : 1.0000E+00 ml Counter used : Tennelec #2 Reference Date : 12/04/90 Sample Counting Date : 12/04/90 : 12/04/90 Chemistry Completion Date Weight of filter 3.4300E+01 mg Weight of filter+precipitate: 5.0100E+01 mg Weight of precipitate Carrier concentration 1.5800E+01 mg 2.1970E+01 mg/ml Carrier volume 1.0000E+00 ml Carrier weight 2.1970E+01 mg Yield : 7.1916E-01 Background counts : 1.1500E+02 Background count time : 5.0000E+01 min Gross counts : 5.9000E+01 Gross count time : 5.0000E+01 min Efficiency : 2.2200E-01 : 0.0000E+00 Impurities Impurities uncertainty : 0.0000E+00

Tc-99 Concentration < 2.8259E-06 uCi/ ml

Data entered by VC 12/07/90

Data checked by FH 12/170

Spike Sample type Total sample volume/weight 1.0000E+01 m1 1.0000E+01 ml Sample volume/weight used Counter used Tennelec #1 12/01/90 Reference Date 12/01/90 11/27/90 Sample Counting Date Chemistry Completion Date : Weight of filter : Weight of filter+precipitate : 3.3400E+01 mg 5.4000E+01 mg Weight of precipitate : Carrier concentration : 2.0600E+01 mg 2.1970E+01 mg/ml Carrier volume 1.0000E+00 ml Carrier weight 2.1970E+01 mg : 9.3764E-01 Yield : 1.2500E+02 Background counts Background count time : 5.0000E+01 min Gross counts : 1.3080E+03 Gross count time : 5.0000E+01 min : 2.0797E-01 Efficiency : 0.0000E+00 Impurities Impurities uncertainty : 0.0000E+00

Tc-99 Concentration 5.4654E-06 +/- 6 % uCi/ ml

Data entered by KLW 12/05/90

Data checked by // 12/7/90

Spike 2 Tc/HH Sample type Total sample volume/weight 1.0000E+01 ml Sample volume/weight used : 1.0000E+01 ml Counter used : Tennelec #1 Reference Date : 12/01/90 Sample Counting Date : 12/02/90 Chemistry Completion Date : 11/28/90
Weight of filter : 3.2400E+01 : 3.2400E+01 mg Weight of filter+precipitate: 5.3250E+01 mg Weight of precipitate : 2.0850E+01 mg Carrier concentration : 2.1970E+01 mg/ml Carrier volume : 1.0000E+00 ml Carrier weight : 2.1970E+01 mg Yield : 9.4902E-01 Background counts : 1.1500E+02 Background count time : 5.0000E+01 min Gross counts : 1.3250E+03 Gross count time 5.0000E+01 min Efficiency 2.0726E-01 : 0.0000E+00 Impurities Impurities uncertainty : 0.0000E+00

Tc-99 Concentration 5.5420E-06 +/- 6 % uCi/ ml

Data entered by KLW 12/05/90

Data checked by 12.7.90

Spike 3/Tc HH Sample type 1.0000E+01 ml Total sample volume/weight 1.0000E+01 ml Sample volume/weight used Tennelec #2 Counter used Reference Date : 12/01/90 Sample Counting Date 12/02/90 : 11/30/90 Chemistry Completion Date Weight of filter : 3.2900E+01 mg Weight of filter+precipitate: 5.4200E+01 mg Weight of precipitate : 2.1300E+01 mg 2.1970E+01 mg/ml Carrier concentration 1.0000E+00 ml Carrier volume Carrier weight : 2.1970E+01 mg Yield : 9.6950E-01 Background counts : 1.1500E+02 Background count time 5.0000E+01 min Gross counts 1.3740E+03 Gross count time 5.0000E+01 min Efficiency 2.1012E-01 Impurities 0.0000E+00 Impurities uncertainty : 0.0000E+00

Tc-99 Concentration 5.5678E-06 +/- 6 % uCi/ ml

Spike 4 Tc/HH Sample type Total sample volume/weight 1.0000E+01 ml Sample volume/weight used 1.0000E+01 ml Counter used Tennelec #2 Reference Date 12/01/90 Sample Counting Date 12/02/90 Chemistry Completion Date : 11/30/90 Weight of filter : 3.2900E+01 mg Weight of filter+precipitate: 5.4200E+01 mg
Weight of precipitate: 2.1300E+01 mg
Carrier concentration: 2.1970E+01 mg/ml Carrier volume : 1.0000E+00 ml Carrier weight 2.1970E+01 mg Yield 9.6950E-01 Background counts 1.1500E+02 Background count time : 5.0000E+01 min Gross counts 1.3660E+03 Gross count time 5.0000E+01 min Efficiency 2.1012E-01 : 0.0000E+00 Impurities Impurities uncertainty : 0.0000E+00

Tc-99 Concentration 5.5324E-06 +/- 6 % uCi/ ml

Initials Date

Data entered by KLW 12/05/90

Data checked by 12.7.

Sample type	•	Spike 5 Tc/HL
Total sample volume/weight	:	
	•	
Sample volume/weight used	:	1.0000E+01 ml
Counter used	:	Tennelec #1
Reference Date	:	12/01/90
Sample Counting Date	:	12/01/90
Chemistry Completion Date	:	11/30/90
Weight of filter	:	3.4100E+01 mg
Weight of filter+precipitate	:	5.0200E+01 mg
Weight of precipitate	:	1.6100E+01 mg
Carrier concentration	:	2.1970E+01 mg/ml
Carrier volume	:	1.0000E+00 ml
Carrier weight	:	2.1970E+01 mg
Yield	:	7.3282E-01
Background counts	:	1.2500E+02
Background count time	:	5.0000E+01 min
Gross counts	:	5.8800E+02
Gross count time	:	5.0000E+01 min
Efficiency	:	2.2122E-01
Impurities	:	0.0000E+00
Impurities uncertainty	:	0.0000E+00

Tc-99 Concentration 2.5730E-06 +/- 12 % uCi/ ml

	Initials	Date
Data entered by	KLW	12/05/90
Data checked by	Mi	

spike 6 Tc/HL Sample type Total sample volume/weight 1.0000E+01 ml Sample volume/weight used 1.0000E+01 ml Counter used Tennelec #1 Reference Date 12/01/90 12/01/90 Sample Counting Date Chemistry Completion Date 11/30/90 Weight of filter 3.4400E+01 mg Weight of filter+precipitate: 5.5700E+01 mg Weight of precipitate : 2.1300E+01 mg Carrier concentration 2.1970E+01 mg/ml Carrier volume 1.0000E+00 ml Carrier weight 2.1970E+01 mg 9.6950E-01 Yield Background counts 1.2500E+02 : Background count time : 5.0000E+01 min Gross counts : 6.8500E+02 Gross count time : 5.0000E+01 min 2.0598E-01 Efficiency Impurities : 0.0000E+00 Impurities uncertainty : 0.0000E+00

Tc-99 Concentration 2.5263E-06 +/- 10 % uCi/ ml

Data entered by KLW 12/05/90

Data checked by 12.7.92

Spike Sample type Total sample volume/weight 1.0000E+00 ml 1.0000E+00 ml Sample volume/weight used Counter used Tennelec #2 Sample Counting Date : 12/01/90
Chemistry Completion Date : 11/27/90
Weight of filter : 3.3800E+01 mg
Weight of filter+precipitate : 5.4000E+01 mg
Weight of precipitate : 2.0200E+01 mg
Carrier concentration : 2.1970E+01 mg/ml
Carrier volume : 1.0000E+00 mi 12/01/90 Reference Date Carrier weight : 2.1970E+01 mg : 9.1944E-01 Yield : 1.2500E+02 Background counts Background count time : 5.0000E+01 min : 1.3080E+03 Gross counts Gross count time : 5.0000E+01 min Efficiency 2.1244E-01 Impurities : 0.0000E+00 : 0.0000E+00 Impurities uncertainty

Tc-99 Concentration 5.4563E-05 +/- 6 % uCi/ ml

Initials Date

Data entered by KLW 12/07/90
Data checked by 12.7-90

Spike 8 Tc/H Sample type Total sample volume/weight 1.0000E+01 ml 1.0000E+01 ml Sample volume/weight used Counter used Tennelec #1 Reference Date 12/01/90 Sample Counting Date 12/01/90 Chemistry Completion Date Weight of filter 11/30/90 3.4500E+01 mg Weight of filter+precipitate: 5.1400E+01 mg Weight of precipitate 1.6900E+01 mg Carrier concentration 2.1970E+01 mg/ml Carrier volume 1.0000E+00 ml Carrier weight 2.1970E+01 mg Yield 7.6923E-01 Background counts 1.2500E+02 : 5.0000E+01 min Background count time Gross counts : 5.9600E+02 Gross count time 5.0000E+01 min 2.1880E-01 Efficiency Impurities 0.0000E+00 Impurities uncertainty 0.0000E+00

Tc-99 Concentration 2.5211E-06 +/- 11 % uCi/ ml

Initials Date

Data entered by KLW 12/05/90

Data checked by W 13.7.96

Spike 9 Sample type 1.0000E+01 ml Total sample volume/weight 1.0000E+01 ml Sample volume/weight used Tennelec #2 Counter used 12/04/90 Reference Date 12/04/90 Sample Counting Date Chemistry Completion Date Weight of filter 12/04/90 3.4100E+01 mg 5.3900E+01 mg Weight of filter+precipitate: Weight of precipitate 1.9800E+01 mg Carrier concentration 2.1970E+01 mg/ml Carrier volume 1.0000E+00 ml Carrier weight 2.1970E+01 mg Yield 9.0123E-01 1.1500E+02 Background counts : 5.0000E+01 min Background count time 1.3030E+03 Gross counts : 5.0000E+01 min Gross count time 2.1330E-01 Efficiency 0.0000E+00 Impurities Impurities uncertainty 0.0000E+00

Tc-99 Concentration 5.5677E-06 +/- 6 % uCi/ ml

Data entered by FM 12/07/90

Data checked by 12/7/90

19762 19763	Customer ID U#B00956	Recorpt Date		Same Referme Date				ı	· ·	-1-1
		NV 1 14.7 15/1/15. 16	المكليكا الماليا الباليان		Mil	*	1/61/11/t		ווידוי ו	
' "A" I	4 18 000 9 4 14 19 NA 800939	ZR 10/19/194	ω. T	4/25/30	Jane 1	-17-14 -40-10	10.63779 10.63779			
19764	U#B009V9	AP 0/10/20	25) н.	9/10/30	- Heria	اختلف	10 6467 9			
19765	U & BOO 9WO	60 10/19/90	ch#	5/8/90	4.0	-444	11.1043 9			
19766	14 1300 980 U# 800950	xx 10/1-140	w.H.	24/24/90	Haral .	ا مناهم	11.08439			1 i.:
19767	11#Boosst "Up UNB00951	े ००१मा	20.41	4125190	a special	النامر	10 5565 9			
19768	41B00B81	10/19/9 J	W.H.	5/21/90	Aprecial.	Jien	8 65 10 9			
19769	U# POOR36	AR 10/19/90 1	ω, <i>Η</i> .:	5/2//20	Aeral	-4444	P. 351 9			B
19770		de 10/19/90	ω.ii.:	5/2/90	Amore	Holid .	9.78429			71°
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" 19772	U\$ BOOKAS	סרירולוג אל	ω"	5/21/:0	Vaca D	folial	10.00239	to issumed	,	я
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19175 19777		ar 10/19/90	W.H.	\$17/9/	Apacal)	dea	9.62.25 9			n -
1 19776	44 BOOM+ MARS - LET BOODVI UBOOD 940	AR 10/19/90 AR 10/19/90	W. H.	5/7/90 1	Special Service	182) 182)	3.43369 7.93109			9
» [9776	UH 1300919	26 10/19/90	W.H.	5/1/90	Jan D	1424	8.911 5			n
" 19779	UL B009TB	80 10/19/90	W.H.	5/1/20	Spead.	_dda	8.8689.4	┪╫	-	n n

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197.80	1 44 BOO977	<u> </u>		39	01/1/6 (A)	d t	777	8.98359				
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, 197 82	U* 1300B83	*	06/61/01	3.44	00/10/5	9		.8.480dg	1	<u>}</u>		
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197 84	4 B00B82 J 11.2	K	10/19/95	3	. 54/4/bc	1	Silo	9.22269	- 4		34	<u>. </u>
19785	C4 600893	Ř.			19/25/20		2	2.93				= =
98.26(11	7 Boods 7	K	co/o//of	3	5/25/90	1		9.55289				
19787	1 U# Boob 31	Z.	1 p/d/(q)	- 1	5/24/90	9	\(\frac{1}{8}\)	8 3309			,	<u>.</u> .
19788	8 U£ 13001390	R	04/61/0	A A	06/50/5		ক	808329				. .
19789	9 U# Box.52.	R	06/61/01	\$; \$; \$;	06/61/9	Speed	3	5 89829]] =
19790	O U# Box35	R	cc/61/q	λ. Ά.	Cel 61 9	A series	-\sqrt{2} -\sqrt{2}	457773				
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66 161 "	of UN BOOCTG	16	10/10/00	3	8		V.	5.0794.9			1 '	, , , , , , , , , , , , , , , , , , ,
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	# 9	Customer Z.D	[] I [eist Date Costomer		Antenne Data	Topal	Set Trac	3.7253		1
1			1.11	 			Sarah D.	Joles	-		-
;	197.98	U# BOO CHE	KR K	(0) 15/50 (U) H(_ [19/30] _			_699449_		<u>, </u>
,	197 99	U# Books9	de	10/19/20 40.44	J	4/9/90	-54-00	- Aple	_ 4 86759_		
	198 00	U# BOOCH 7	å	k/19/95 W.W.	1	4/9/90	. Apren (- dole	6 19030		,
		Duplicate: 19000 Booths 150099	10	N/19/90 W.M.	-	77.679 77.67 57.60	8			12-50 6-22-0	<u>)</u>
. 1	10861	•		14/13/30	****			F] #			•
'	198 02	U# Booca:1	1	h/19/40 4/4		6/19/90	-1/4-1/44	42	4 30719		1
,	19803	U# 13009 Q4	SR	10/19/90 20 14.		4/20195	Proper	144	102314		1
1	19804	U# 3 00996	11	10/10/00 W.A.		4/20/90	special.	344	10.1911		<u> </u>
1	" 198 ¹ 05	U# B009q3	TR.	*/15/10 WH	1	1,/20/Pc	المحمد		10.3448g		:
•	198.06	U# 13009@5	Te	M.W CELEIN	1	11/20/90	April 0	alla	0 4018 9		1 .
	* 1 19807	U# B009T1	do	NW ORKEING		1,26/90	Lemo	Add	10.33223	-	<u>'</u>
ì	n n 198'08	U# B009T2	J.c	10)19 AO W.M.		4/26/50	Paris D	Marie	10.41439		<u>.</u>
	* 198 <i>0</i> 9	U#B009T3	AR	0119/20 1011		5/3/90	Bour 0	النامد	9.52719		<u>.</u>
i	" 198.10	U# B00974	de	10 10 po 1 W. 1.		5/3/90	14.0	144	2.58989		<u>'</u>
	19811	Duplicate 1944 80000 8003	o di	10/19/90: WH.			35a Jacon D	. Add	4 47		
	19812	U# B00 9 TG	16	10/19/20 10 11.		5/3/90	*picale	Helia	8.7850 g		24.45
_	<u>=</u> 19813	_ U# B00975	_	10/10/20 WA.		5/3/9	4	1447	8.87759		enge.
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M-X

WORK ORDER/INVOICE AUTHORIZATION

Plant:

HANFORD

Project No.:

1-139-05-656

SAIC Sample Nos.:

19768-19815

P. O. No.:

MPB-SVV-039146

Date Received:

10/19/90

Date Results Due:

12/03/90

Logged By:

LAURENT RICKS

Log Date:

10/19/90

1	Quantity	Description	Unit Price	Total	-
	43	Tc-99		\$ =	-
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			Basic value	\$ -	
			Shipping charges (if any)	\$ -	-
			Surcharges/late penalties	\$ į	
			Total amount due this invoice	\$:	

Check () at left if item subcontracted to another lab

Comments:

Sample Delivery Group No. BOOB87

Date sent out:

Date received:

Date due back:

Total cost:\$ (items checked)

(11/90)

12-1